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LEUCODON SCHWAEGR. Suppl. 1. pt. 2:1, 1816.

BY A. J. GROUT.

The various species of *Leucodon* grow almost exclusively on the bark of deciduous trees, very rarely are any found on dry rocks. The *Leucodons* are seemingly able to do without moisture for considerable periods as they rarely or never grow at the base of trees, but at a height of five or six feet and above. The main stems are long, slender, branching, almost filiform, with minute leaves and abundant rhizoids. The secondary stems are numerous, suberect, horizontal, or hanging downward and curved outward, usually julaceous and nearly simple; paraphyllia lacking. Leaves many ranked, concave, with margins recurved below, ecostate, entire or slightly serrulate at apex, closely appressed when dry, spreading when moist; leaf cells strongly incrassate; several rows of marginal cells are roundish quadrate; the lower median, linear, gradually changing to oval at the apex; basal cells often brownish or reddish yellow. Dioicous. Calyptra cucullate, often attached below the capsule by the connate base. Capsules exserted or emergent, erect and symmetrical; peristome apparently simple, teeth 16, articulate and papillose, bifid or occasionally trifid; inner peristome reduced to a narrow inconspicuous membrane.

We have three species, only one of which, *L. sciuroides*, is European. There is considerable difference of opinion as to what other genera of mosses should be grouped with *Leucodon*. *Cryphea* and *Antitricha* are apparently closely related genera. More careful study of its development and structure is needed to determine whether its natural relationship is with the *Neckeraceæ* or the *Hypnaceæ*.

LEUCODON JULACEUS (Hedw.) Sulliv. This species is typically southern, extending north to Southern New England and corresponding latitudes of the Eastern United States. The secondary stems are typically shorter than in the other two species, the branches very terete, julaceous when dry; the leaves closely appressed and imbricate, not at all secund, ovate-elliptical, abruptly short acuminate, very concave, scarcely plicate, serrulate at apex. Upper median leaf cells markedly shorter and broader than in the other two species. Capsule long exserted as in *L. sciuroides*; annulus none; teeth bifid at apex.

Easily recognized by its perfectly terete stems and smaller, scarcely plicate, abruptly acuminate leaves.

LEUCODON SCIUROIDES (L.) Schwaegr. Forming tufts or mats of brownish green, lighter green at the tips of the secondary stems, which are terete and julaceous, more or less drooping and curved upwards at the ends, rarely 5cm. long, usually not over 3cm., frequently producing such a great

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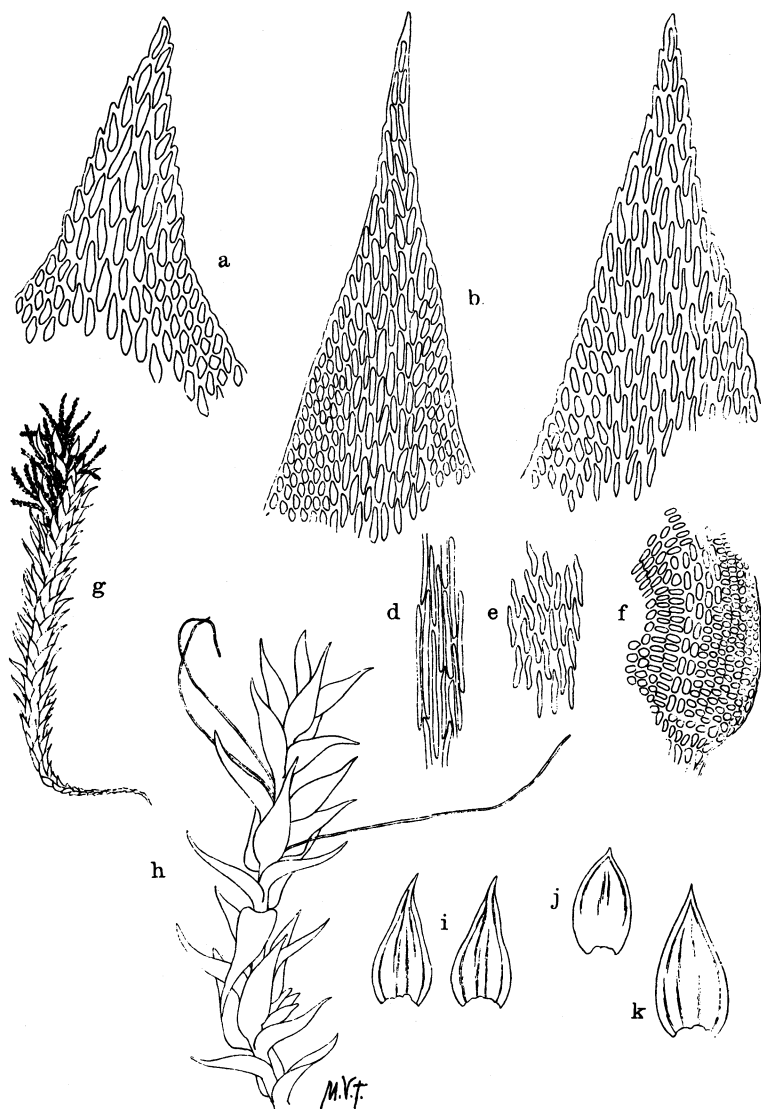
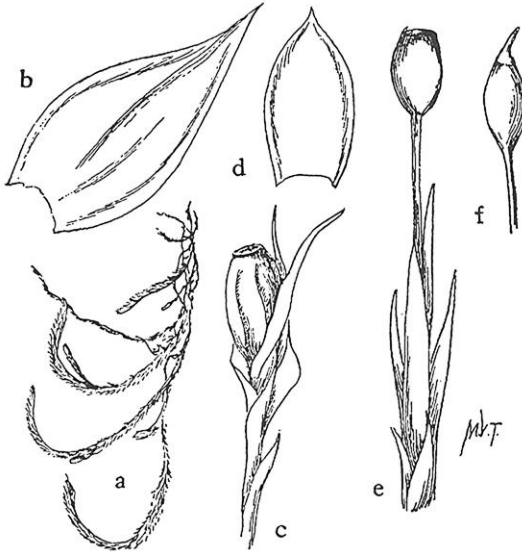


PLATE I. LEUCODON.

a, b, c.—Apices of leaves of *Leucodon julaceus*, *L. sciuroides* & *L. brachypus* respectively $\times 250$. d, e, f.—Upper-median, median-basal, and alar cells respectively of *L. brachypus* $\times 250$. g.—Secondary stem of *L. sciuroides* having flagellæ. $\times 3$. h.—Flagella of *L. sciuroides*, $\times 50$. i,—Leaves of *L. sciuroides*, $\times 10$. j,—Leaf of *L. julaceus*, $\times 10$. k,—Leaf of *L. brachypus*, $\times 10$.



a,—Plant of *Leucodon brachypus* $\times 1$. b,—Leaf of *Leucodon brachypus* $\times 20$. c,—Sporophyte of *Leucodon brachypus* $\times 10$. d,—Leaf of *Leucodon julaceus* $\times 20$. e,—Sporophyte of *Leucodon julaceus* $\times 10$. f, Capsule of *Leucodon julaceus* $\times 10$.

leaves is much longer and more slender than that of *L. brachypus* and is also entire. The upper median cells are also usually a little more elongated. The secondary stems also much shorter than those of well developed *L. brachypus*. Probably common in North-Eastern United States and Eastern Canada but not often collected or else confused with *L. brachypus*. Collectors should be on the lookout for it. In examining leaves for serration, several should be examined, as the leaves of *L. brachypus* and *L. julaceus* are sometimes nearly entire.

LEUCODON BRACHYPUS Brid. Secondary stems averaging longer and larger than in the preceding species, less frequently branched. Leaves more strongly secund, plicate but with fewer folds than in *L. sciuroides*; the acumination is serrulate and not nearly so slender and pointed as in *L. sciuroides*. Seta 3-4mm. long, wrapped up in the perichaetial leaves, which over-top the emergent capsule; annulus lacking, teeth bifid at apex. Spores maturing in winter.

Having about the same ranges as the last but extending farther south. Abundant and frequently fruiting in the mountain regions of North-Eastern United States. It extends to Georgia along the mountains but is rare south of New York. A form from Stone Mountain, Georgia, (J. K. Small) is much more slender than the usual Northern form.

number of flagelliform small leaved branches as to cause the plant to appear deformed. Leaves of secondary stems slightly secund, ovate-lanceolate, somewhat decurrent, very long and slenderly acuminate, entire, plicate with several folds. Seta about 8mm. long; capsule exserted; annulus present; teeth entire or split toward the base. Very rarely fruiting.

Easily distinguished from *L. julaceus* by the different shape of its leaves. It fruits so rarely that it has to be differentiated from *L. brachypus*, which it closely resembles, by its leaf apices. The acumination of the